

REMARKS

Applicant requests reconsideration of the present application in view of the foregoing amendments and the discussion that follows. The status of the claims is as follows. Claims 1-30 are pending. Claims 11, 12 and 14 have been amended herein.

The Amendment

Claim 11 was amended to recite "geometrical shape" in place of "first guide" and "complementary geometrical shape" in place of second guide. Support therefor is in the Specification, for example, page 11, lines 9-11.

Claim 12 was amended to recite that the complementary geometrical shapes comprise a protrusion from one of the mating faces and a recess in the other of the mating faces. Support therefor is in the Specification, for example, page 11, lines 11-13.

Claim 14 was amended to delete "generally" and also to recite "support mating face" in place of "first mounting block surface" to provide proper reference back to the phrase appearing earlier in the claim. Support therefor is in the Specification, for example, original Claim 14.

Rejection under 35 U.S.C. §112

Claims 11 and 14 were rejected under the second paragraph of the above code section as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant submits that all of the specific rejections under the above code section have been obviated by the above amendments.

Rejection under 35 U.S.C. §102

Claims 1-3 were rejected under 35 U.S.C. 102(b) as being anticipated by Meek (U.S. Patent No. 4,686,365). The Examiner contends that Meek discloses a base (12) having front and rear faces and at least one side face and, at least two supports (13,14) wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. The Examiner refers to Fig. 1 of Meek. The Examiner acknowledges that Meek does not specifically state that at least one of the supports has attached thereto a component of an ion

optics system for a mass spectrometer. The Examiner then refers to Fig. 1 and col. 5, lines 34-50.

In order to maintain a rejection under 35 U.S.C. §102(b) the Examiner must first establish a *prima facie* case of anticipation. An invention is anticipated if each and every limitation of the claimed invention is disclosed in a single prior art reference. *In re Paulsen*, 30 F.3d 1475, 1478, 31 U.S.P.Q.2d 1671, 1673 (Fed. Cir. 1994). In the present situation Meek does not disclose each and every element of the claimed invention. The Examiner acknowledges that Meek fails to disclose that at least one of the supports has attached thereto a component of an ion optics system for a mass spectrometer. The disclosure of Meek at Fig. 1 and col. 5, lines 34-50, does not cure this deficiency.

Furthermore, the Examiner's assertion that "each of the supports of Meek is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support" does not appear to be taught in Meek. An allegedly anticipating reference must be enabling and describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art. *In re Paulsen, supra*, at 1673. The anticipation determination is viewed from one of ordinary skill in the art. There must be no difference between the claimed invention and the reference disclosure as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 18 U.S.P.Q.2d 1001 (Fed. Cir. 1991). In the present situation the contention that "each of the supports of Meek is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support" is mere conjecture unsupported by the teaching of the reference. In fact, Meek appears to be devoid of any such teaching.

The above arguments apply equally to the rejection of Claims 2 and 3 as anticipated by Meek. Meek does not appear to disclose the alignment being at 90 degrees as in Claim 2. As for Claim 3, Meek does not appear to provide any teaching concerning an embodiment wherein at least one of the supports has at least two faces and at least a portion of each of the two faces being aligned with two faces of the base.

Claims 1-5 were rejected under 35 U.S.C. 102(b) as being anticipated by Becker (U.S. Patent No. 5,864,137). Again, an allegedly anticipating reference must be enabling and describe the claimed invention sufficiently to have placed it in

possession of a person of ordinary skill in the art. *In re Paulsen, supra*, at 1673. The anticipation determination is viewed from one of ordinary skill in the art. There must be no difference between the claimed invention and the reference disclosure as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genentech Inc., supra*. Becker does not disclose, as the Examiner contends, a base having a front face, a rear face and at least one side face, and at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support wherein at least one of the supports has attached thereto a component of an ion optics system for a mass spectrometer. The fact that Becker makes no such disclosure is supported by the teaching of the reference. Becker indicates that his mass spectrometer also comprises an alignment system to align the ion optics (see, for example, the Abstract of Becker). With this teaching of Becker, one skilled in the art would not be placed in possession of the invention of Claim 1.

Similarly, Becker does not disclose the alignment being at 90 degrees as in Claim 2. Furthermore, Becker does not disclose the embodiment of Claim 3 wherein at least one of the supports has at least two faces and at least a portion of each of the two faces is aligned with two faces of the base. Becker does not disclose a plurality of supports with attached components comprising an ion source and a detector and optionally one or more of a pulser, an ion mirror and an Einzel lens where the alignment results in a relationship between the components that are within acceptable tolerances as in Claim 4. With respect to Claim 5, Becker does not disclose a mass spectroscopy apparatus according to claim 1.

Claims 10 and 13-18, were rejected under 35 U.S.C. 102(b) as being anticipated by Becker. For the reasons set forth above for Claims 1-5, Becker does not disclose the mass spectroscopy apparatus of Claims 10 and 13-18.

Claims 20-22 were rejected under 35 U.S.C. 102(b) as being anticipated by Becker. For the reasons set forth above for Claims 1-5, Becker does not disclose the method of Claims 20-22 for constructing an apparatus comprising a plurality of components of an ion optical system for a mass spectroscopy apparatus. As mentioned above, Becker indicates that his mass spectrometer also comprises an alignment system to align the ion optics. With this teaching of Becker, one skilled in the art would not be placed in possession of the invention of Claims 20-22. Claim 20

recites that the portions of the faces are configured and dimensioned such that, when the portions are secured, the components are optically aligned within acceptable tolerances. In view of Becker's teaching of an alignment system to align the ion optics, one skilled in the art would not view Becker as teaching the invention of Claims 20-22.

Claims 26-28 were rejected under 35 U.S.C. 102(b) as being anticipated by Becker. For the reasons set forth above with respect to Claims 1-5, Becker does not disclose the embodiments of Claims 26-28.

Claims 10-12, 20 and 26 were rejected under 35 U.S.C. 102(b) as being anticipated by Kirchner (5,464,975). Contrary to the assertion of the Examiner, Kirchner does not disclose support mating faces and a base mating face configured and dimensioned such that, when the support mating faces are brought together in registration with the respective base mating faces, the components are optically aligned within acceptable tolerances. The passages cited by the Examiner are silent as to the aforementioned limitations of Claim 10 and the Examiner has not recited any specific language from the reference. Kirchner mentions only that the electrodes are intended to deflect the exiting beam of mass-selected ions with a very broad range of focal points to an electron multiplier positioned outside of the cone for neutral and scattered ions, in a plane substantially parallel with the plane defined by the ends of the quadrupole electrode structure. As explained above, an allegedly anticipating reference must be enabling and describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art. *In re Paulsen, supra*, at 1673. The anticipation determination is viewed from one of ordinary skill in the art. There must be no difference between the claimed invention and the reference disclosure as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genentech Inc., supra*.

For the above reasons, Claims 11 and 12 are not anticipated by Kirchner. The Examiner refers to Fig. 4a of Kirchner and asserts that the reference discloses a support mating face comprising a first guide and a corresponding base mating face comprises a second guide complementary to the first guide and the corresponding mating faces are brought together in registration by apposing the first guide and the second guide. However, the Examiner does not point out any specific items or language from the figure, or the reference in general, that makes such a disclosure. Similarly, regarding Claim 12, no specific disclosure of the reference is cited as

disclosing the guides being complementary geometrical shapes. Again, only a general mention of Fig. 4a is made. .

Claim 30 was rejected under 35 U.S.C. 102(e) as being anticipated by Blessing (U.S. Patent No. 6,239,429). The Examiner asserts that Blessing discloses a scientific apparatus for use in high vacuum environments. The apparatus, contends the Examiner, comprises at least one electrical connection therein resulting from a base having a groove in at least one face thereof wherein an electrical lead is sequestered in the groove and wherein a shielding plate covers the groove. The Examiner refers to various figures and passages of Blessing in support of the above assertion. Again, no specific language is identified or mentioned in the Office Action. To the extent that Applicant can find specific language to which the Examiner may be referring, Applicant submits that the reference does not disclose the limitations of Claim 30. Applicant assumes that the Examiner is referring to the disclosure of Blessing regarding the use of radial fasteners that secure the rods to the retainer block through screw channels. Blessing indicates that the radial fasteners may serve as the sole electrical connection. Assuming for the sake of argument that the screw channels are equivalent to the groove of Claim 30, the reference fails to disclose a shielding plate the covers the groove.

Rejection under 35 U.S.C. §103

Claims 1, 6 and 8-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Young (U.S. Patent No. 5,360,976) in view of Kirchner 2 (U.S. Patent No. 5,206,506). With regard to Claim 1, the Examiner recognizes that Young does not teach an apparatus comprised of at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. However, asserts the Examiner, Kirchner 2 does teach an apparatus comprised of at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. In support of this assertion the Examiner refers to Fig. 2 of Kirchner 2. Therefore, concludes the Examiner, "it would have been obvious to a person of ordinary skill in the art at the time the invention was made cover (sic) the apparatus of Young" by at least two supports wherein each support has at least one face and

wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support in order to provide a covering in order to produce a vacuum area for the ions to pass through. Applicant respectfully requests clarification of the language above in quotations. There appears to be a typographical error that makes the language unclear.

To the extent understood, Applicant submits that the deficiencies of Young are not overcome by the disclosure of Kirchner 2. First, Applicant is unable to find in Kirchner 2 any specific teaching of the language of Claim 1. Accordingly, if the fanciful combination of the references were made as suggested by the Examiner, the skilled artisan would not be in possession of the invention of Claim 1.

Second, there is no motivation in the references for combining their disclosures in the manner in which the Examiner has done. There must be some suggestion, motivation or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used to make the new device (*C.R. Bard, Inc. v M3 Systems, Inc.*, 157 F.3d 1340, 48 U.S.P.Q.2d 1225 (Fed. Cir. 1998), *cert. denied*, 67 U.S.L.W. 3715 (1999)). The Examiner alleges the motivation for such a combination would be to provide a covering in order to produce a vacuum area for the ions to pass through. Applicant submits that this motivation is mere speculation unsupported by any teaching of the references. Furthermore, the disclosure of Kirchner 2 relates to an ion processing unit and the disclosure of Young relates to a time of flight mass spectrometer.

For the reasons similar to those presented above, the combination of Young and Kirchner 2 does not suggest Claim 6 or Claim 8.

With regard to claim 9, the Examiner asserts that Young in view of Kirchner teach all aspects of the claim except for at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening in order to ensure proper alignment with the ion optics and ensure a vacuum tight atmosphere. Applicant submits that the motivation for such a combination alleged by the Examiner is speculation unsupported by the references.

In fact, the Examiner is using Applicant's disclosure in support of the rejection. "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that'[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992) (quoting *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988).

It is Applicant's teaching and invention to achieve self-alignment of the components of the ion optics system accurately to within acceptable tolerances upon assembly and installation. According to the invention the respective mating faces for installation on the mounting base of the components of the ion optics system that are alignment critical are formed to close tolerances before assembly. In this way, mutual alignment of the components of the ion optics system is established to a predetermined specification upon installation. The respective mating faces are configured so that optical alignment of each part is established when the mating faces are brought together in a unique way permitted by the configuration. None of the references teaches or suggests this invention.

Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of Kirchner 2 as applied to claim 6 above, and further in view of Blessing. Applicant submits that Blessing does not cure the deficiencies of Young and Kirchner 2. As explained above, even if one were to assume for the sake of argument that the screw channels of Blessing are equivalent to the groove of Claim 7, Blessing fails to disclose a shielding plate that covers the groove. In addition, the motivation alleged by the Examiner for combining the teaching of Blessing with that of Young and Kirchner 2 is not supported by the teaching of the references. The Examiner alleges that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have an electrical lead sequestered in the groove and the apparatus further comprise a shielding covering the groove in order prevent non-ideal field distortion at the central axis as taught in Blessing. However, Blessing teaching is that, in the case of filter rods 104 with circular cross section, such as in the embodiment discussed, the entrance electrode 130 also serves to provide a shielding electrode around the ends of the filter rods 104 of precisely the proper inner diameter to reduce certain non-ideal field distortions at the central axis

of the QMA. To assert that this teaching provides the motivation for combining the teaching of the references in the manner in which the Examiner has done to create the presently claimed invention goes far beyond the actual teaching of the Blessing reference.

Claims 19, 23-25 and 29 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kirchner in view of Young and further in view of Blessing. With regard to Claims 19, 25 and 29, the Examiner recognizes that Kirchner is deficient in not specifically teaching that a front face or a rear face has at least one groove therein, wherein an electrical lead is sequestered in the groove and the mounting base further comprises a shielding plate covering the groove. The Examiner asserts that Young teaches a front face or a rear face having at least one groove therein and shielding covering the groove. However, it is readily seen that the groove in Young's component is for a refrigerant coil, not an electrical lead. Accordingly, combining Young with Kirchner does not cure the deficiencies of Kirchner and does not produce Applicant's invention. Furthermore, the motivation for the combination offered by the Examiner is mere speculation unsupported by the teaching of the references. The motivation alleged by the Examiner is to aid in securing the ion optics to the base as taught in Young. However, Kirchner does not have a refrigerant coil and, thus, there is no advantage for Kirchner to have a groove.

The Examiner does recognize that Young is deficient in not teaching an electrical lead being sequestered in the groove. However, the Examiner seeks to cure this deficiency by further combining the teaching of Blessing. It would have been obvious to a person of ordinary skill in the art at the time the invention was made, asserts the Examiner, to have an electrical lead sequestered in the groove with shielding covering the groove in order to provide voltage and current to the ion optics without introducing non-ideal field distortions at the central axis as taught in Blessing. However, as mentioned above, Blessing is deficient as discussed above in not teaching shielding covering the groove. Also, as explained above, Blessing's teaching relates only to filter rods with circular cross section and that an entrance electrode serves to provide a shielding electrode around the ends of the filter rods of precisely the proper inner diameter to reduce certain non-ideal field distortions at the central axis of the QMA. To assert that this teaching provides the motivation for combining the teaching of the references in the manner in which the Examiner has

done goes far beyond the actual teaching of the Blessing reference and the other references.

For the reasons set forth above, Claims 23 and 24 are not rendered obvious by a combination of teachings of Kirchner, Young and Blessing.

Conclusion

Claims 1-30 satisfy the requirements of 35 U.S.C. §§112, 102 and 103. Allowance of the above-identified patent application, it is respectfully submitted, is in order.

Respectfully submitted,



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